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(54) **TAMPON APPLICATOR**

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CPC ***A61F 13/26*** (2013.01); ***A61F 13/266*** (2013.01)

(58) **Field of Classification Search**
CPC A61F 13/26; A61F 13/266
USPC 604/14, 15, 18
See application file for complete search history.

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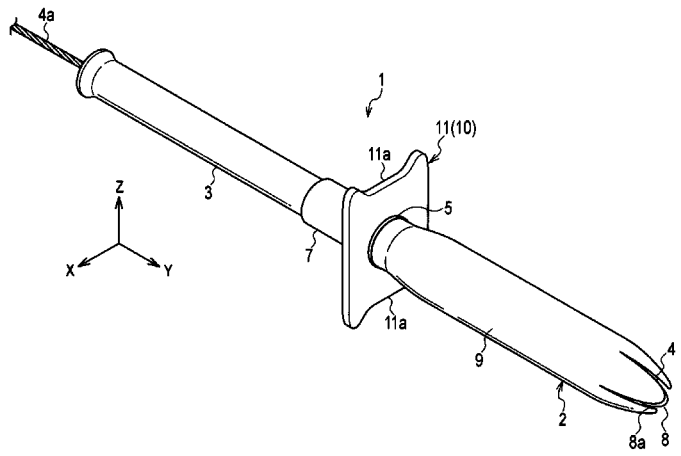
(57) **ABSTRACT**

A tampon applicator includes an outer cylinder in which an absorber is housed, and a push-out opening through which the absorber is to be pushed out is provided at one side and a grip cylinder unit is provided at the other side, and an inner cylinder which is inserted into the grip cylinder unit and being moved into the outer cylinder to be thereby able to push out the absorber outward through the push-out opening. The tampon applicator includes a grip jaw unit configured to extend from an outer circumferential face of the grip cylinder unit of the outer cylinder outwardly in a radial direction, wherein a finger hook unit by which a finger of a user is to be hooked is formed at the grip jaw unit.

12 Claims, 11 Drawing Sheets



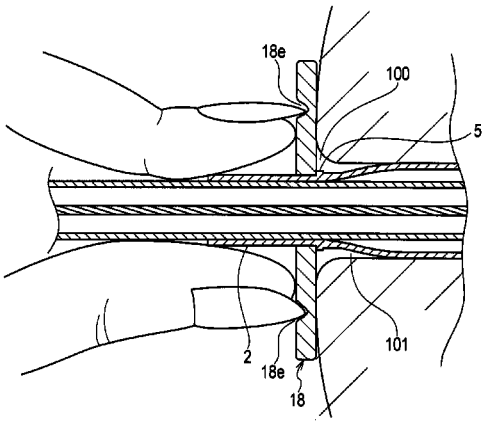


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Fig. 1

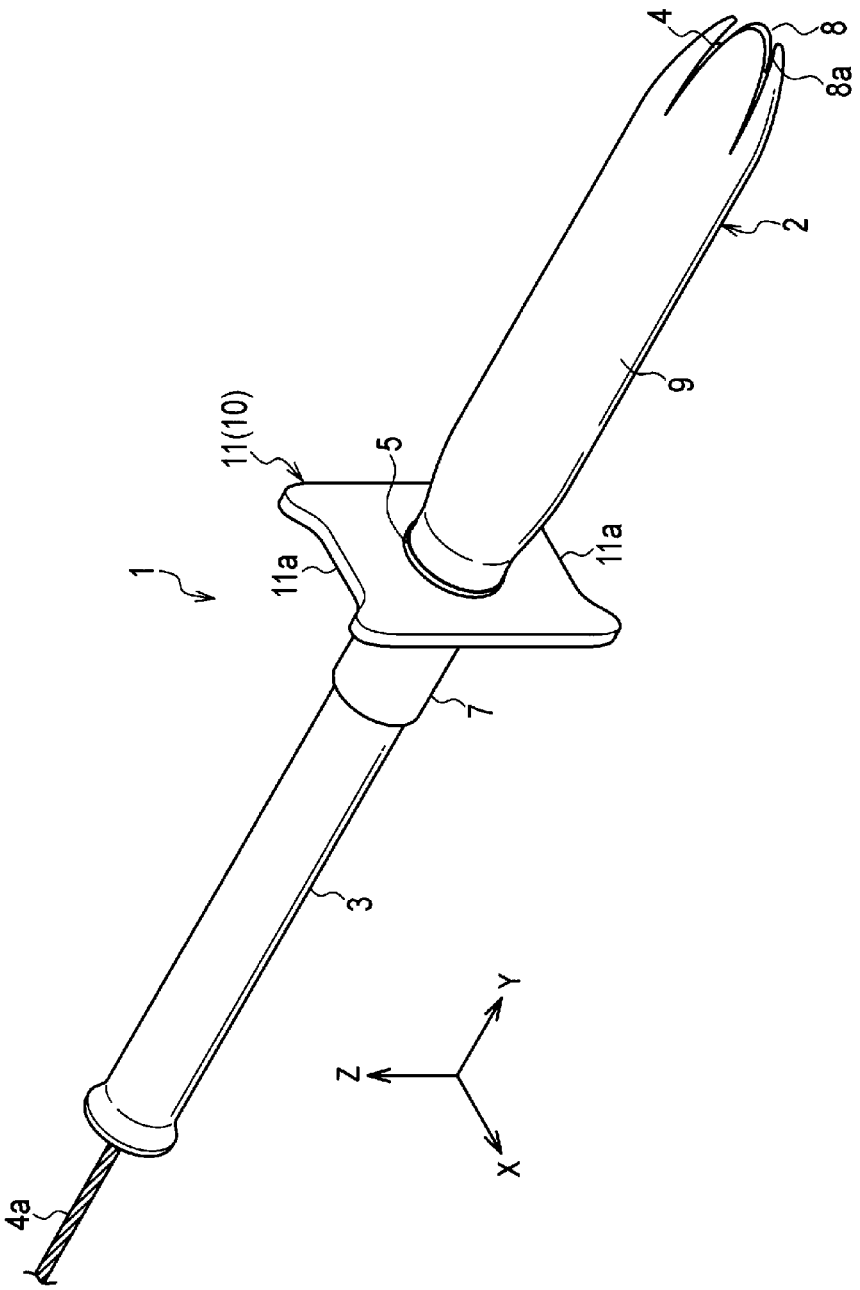


Fig. 2

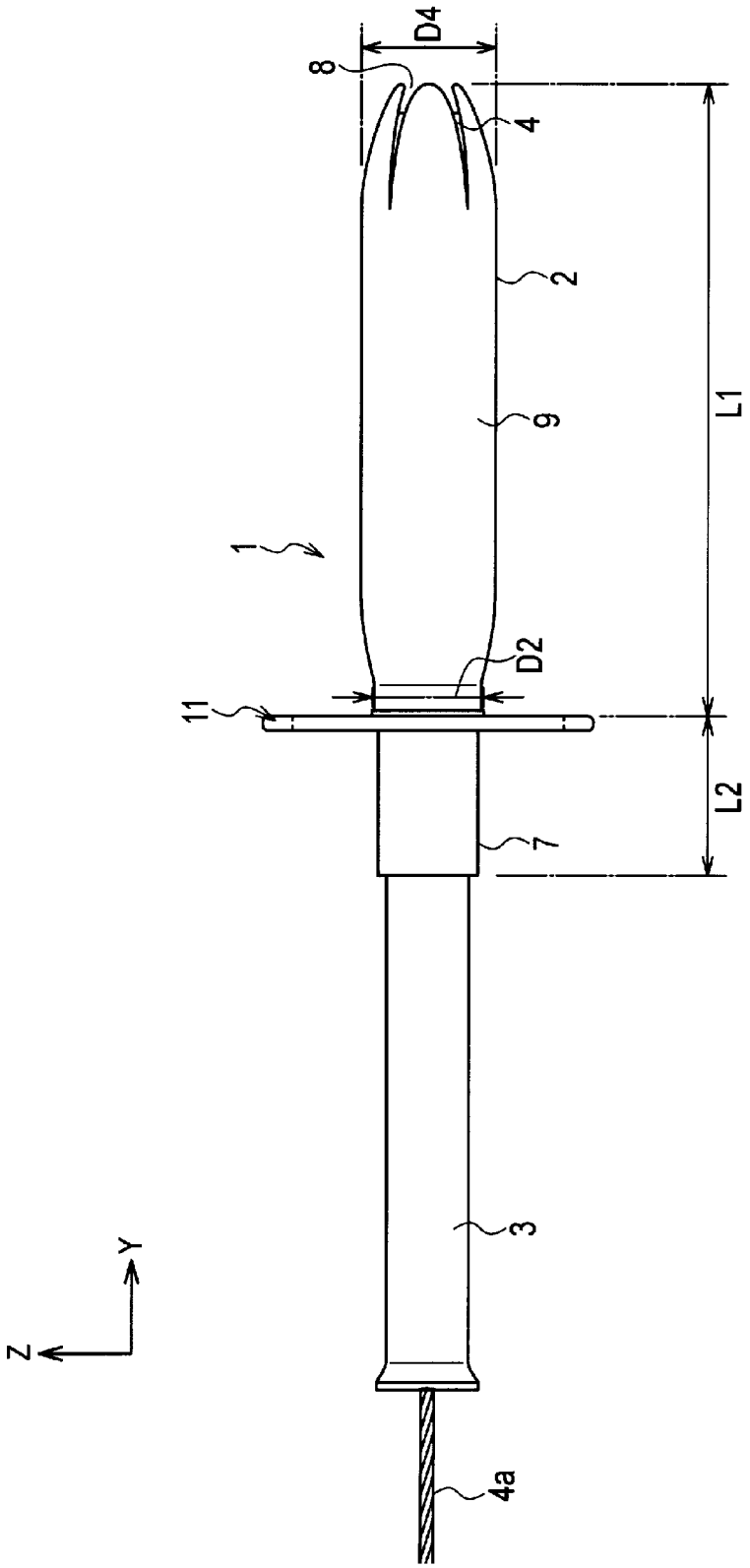
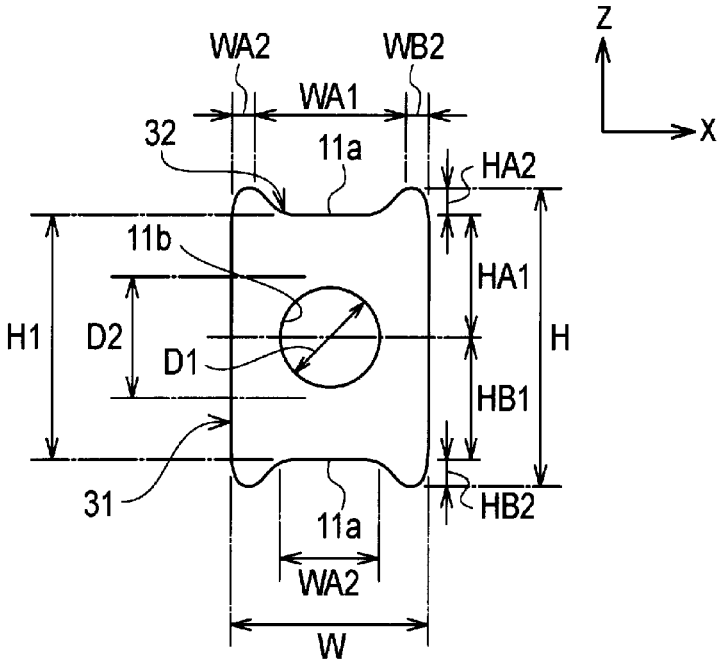


Fig. 3

(a)


Z
X
WA2
WB2
WA1
32
11a
HA2
11b
HA1
H1
D2
D1
H
HB1
31
HB2
11a
WA2
W

(b)

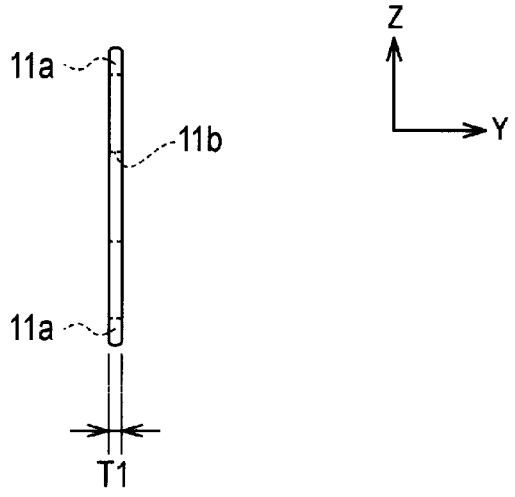

Z
Y
11a
11b
11a
T1

Fig. 4

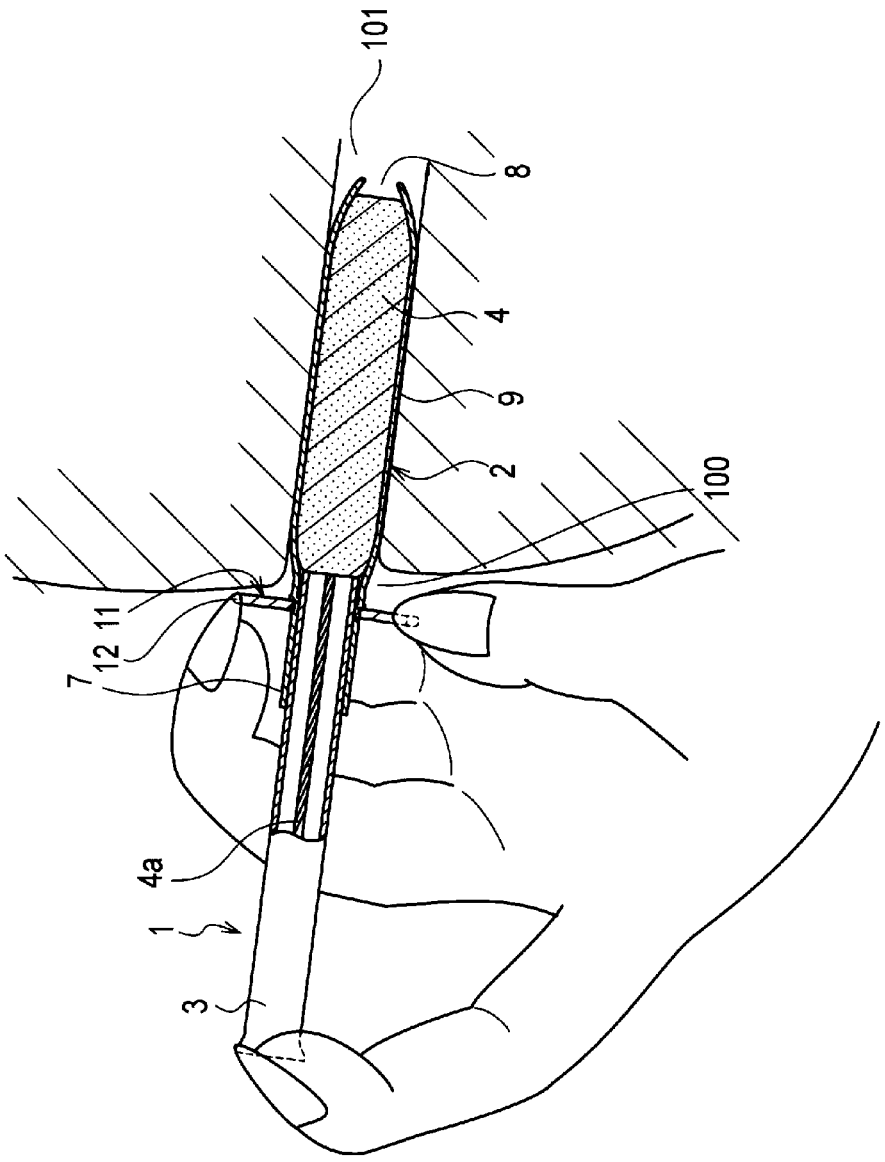


Fig. 5

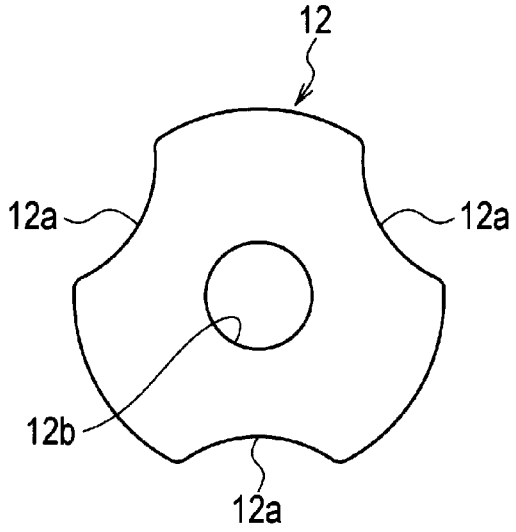


Fig. 6

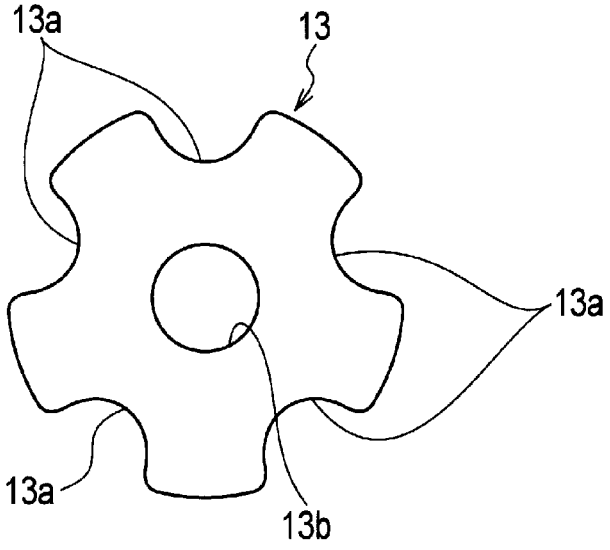


Fig. 7

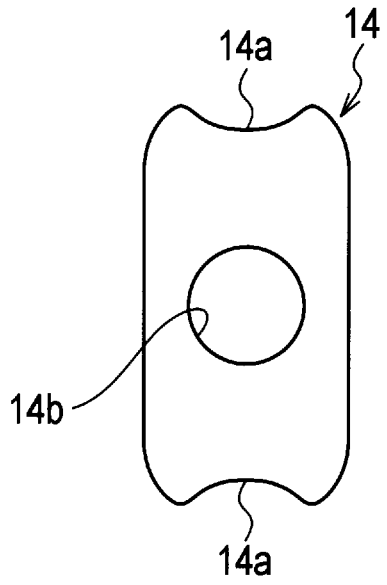


Fig. 8

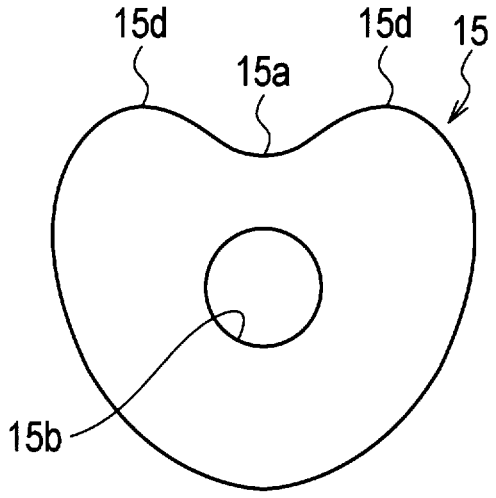


Fig. 9

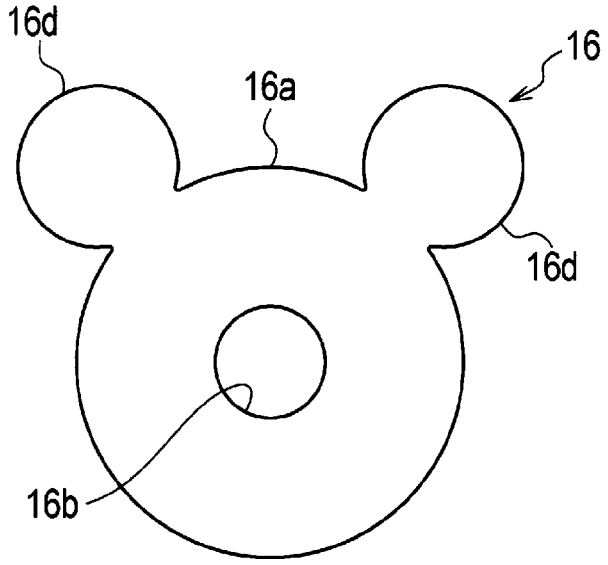


Fig. 10

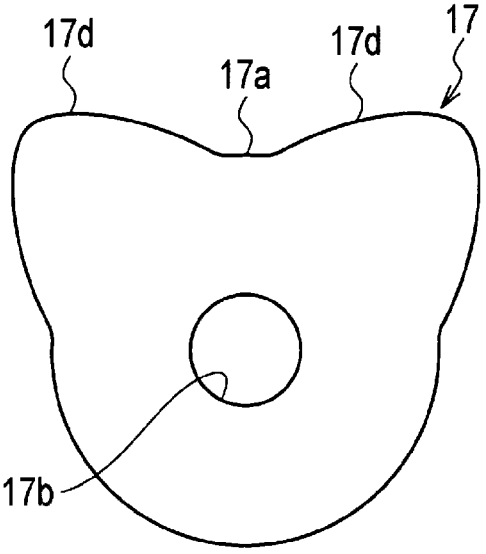


Fig. 11

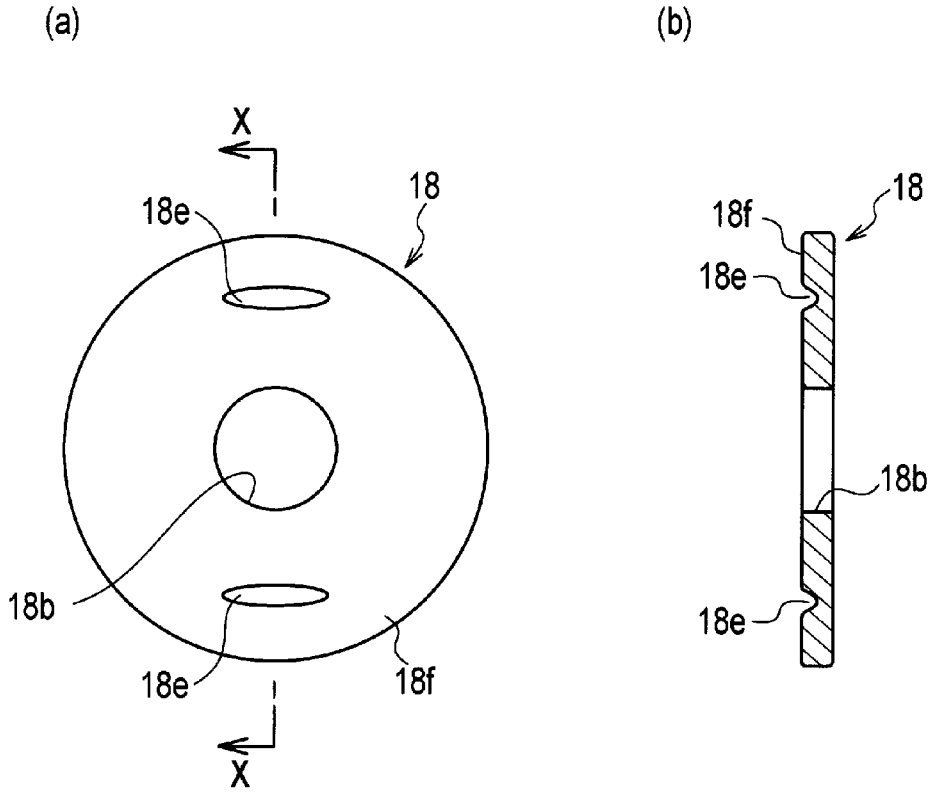


Fig. 12

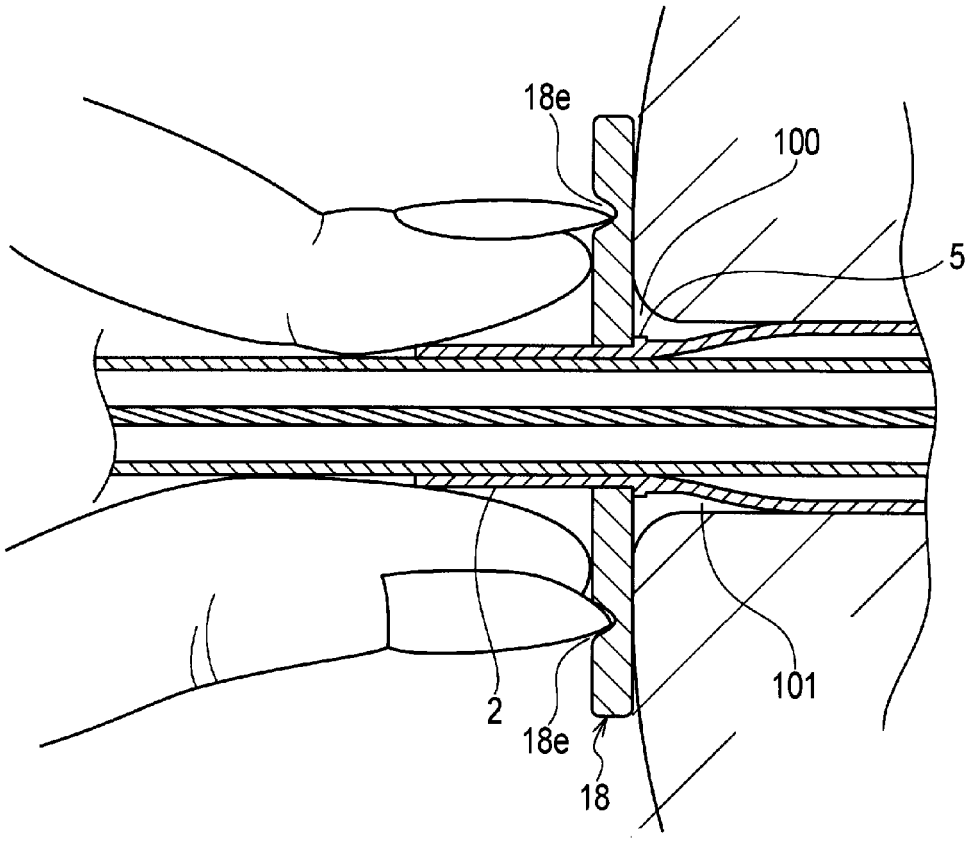


Fig. 13

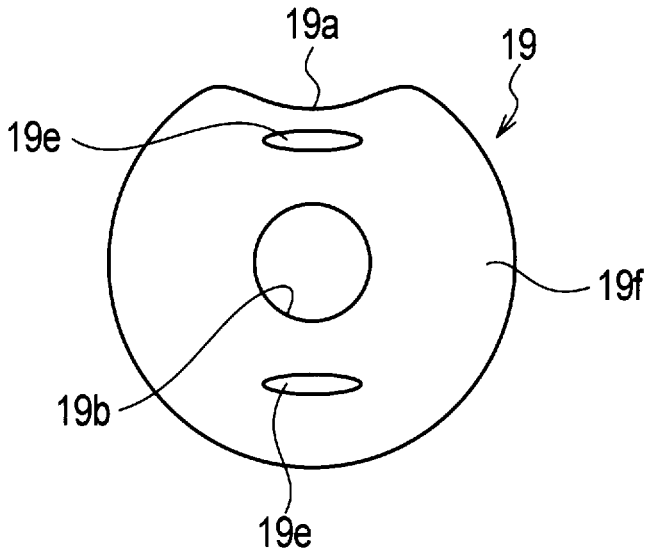
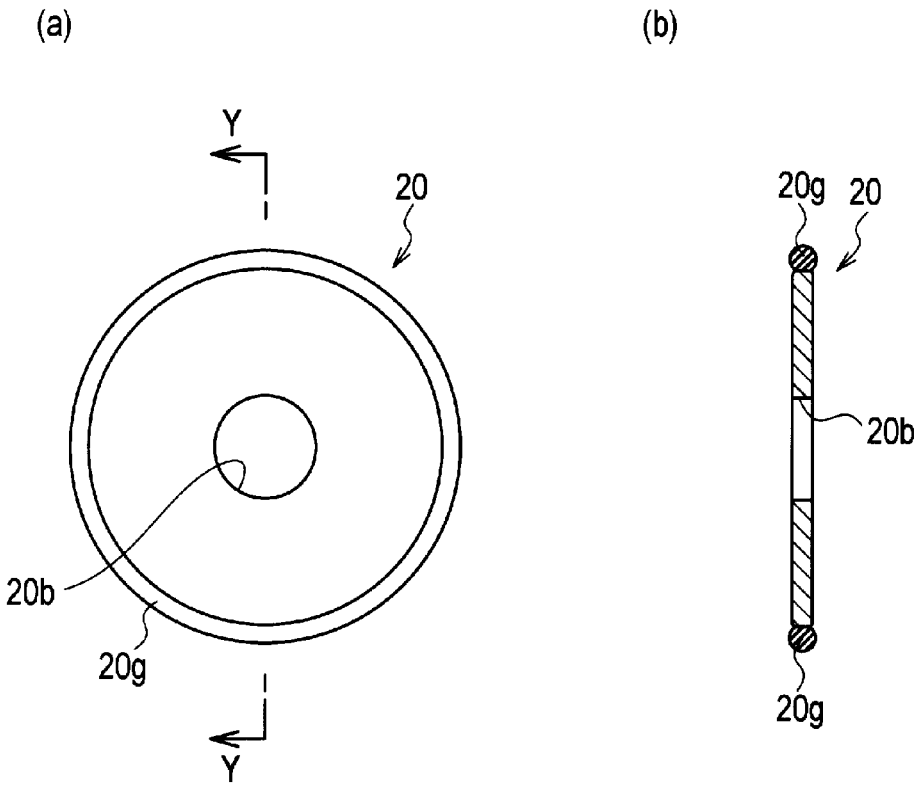


Fig. 14



TAMPON APPLICATOR

RELATED APPLICATIONS

The present application is a National Phase of International Application Number PCT/JP2011/007305, filed Dec. 27, 2011, and claims priority from Japanese Application Number 2010-290081, filed Dec. 27, 2010.

TECHNICAL FIELD

The present invention relates to a tampon applicator.

BACKGROUND ART

Conventionally, a sanitary tampon with applicator is provided. A tampon applicator is provided with an outer cylinder and an inner cylinder. An absorber having a lead-out cord is housed inside of the outer cylinder. When using the sanitary tampon, a user grips the outer cylinder, inserts the outer cylinder into a vagina, and then, compresses the inner cylinder against the outer cylinder in a state in which the user grips the outer cylinder. When the user compresses the inner cylinder against the outer cylinder, the absorber is pushed out from the outer cylinder, and then, the absorber is disposed inside of the vagina. However, when using the sanitary tampon, if the user pushes out the absorber without inserting the outer cylinder until the outer cylinder has reached an appropriate depth, the absorber could not occasionally be disposed at an appropriate position inside the vagina.

In Patent Document 1, a tampon applicator, which has been made in view of such a problem, is described. The tampon applicator is provided with a curved shaped stopper that is extensive to the periphery of an outer cylinder. When a user uses a sanitary tampon, the user compresses the outer cylinder via the stopper, and then, inserts the outer cylinder into a vagina. Then, after the outer cylinder is inserted until the outer cylinder has reached an appropriate depth, the stopper is constituted so as to abut against a vaginal opening. Therefore, the user inserts the outer cylinder until the outer cylinder has reached the appropriate depth, to be thereby able to dispose the absorber at an appropriate position inside the vagina.

CITATION LIST

Patent Literature

[PTL 1]JP Patent No. 3217617

SUMMARY OF INVENTION

Technical Problem

However, since the stopper of the tampon applicator, described in Patent Document 1, is formed in a curved shaped elliptical shape at its circumferential face, if an attempt is made to grip the stopper with fingers when it is inserted, there is an apprehension that the fingers slip. If the fingers that are gripping the stopper slip when the outer cylinder is inserted, the outer cylinder cannot be inserted in a state in which an appropriate insertion angle is maintained, and there is an apprehension that the absorber cannot be disposed at the appropriate position inside the vagina.

Therefore, the present invention has been made in view of the problem described above, and it is an object of the present invention to provide a tampon applicator, which is capable of easily disposing an absorber at an appropriate position inside a vagina.

Means for Solving the Problem(s)

In order to solve the problem above, a tampon applicator according to one aspect of the present invention includes an outer cylinder in which an absorber is housed and a push-out opening through which the absorber is to be pushed out is provided at one side of the outer cylinder and a grip cylinder unit is provided at the other side of the outer cylinder; an inner cylinder insertable into the grip cylinder unit and being moveable into the outer cylinder to be thereby able to push out the absorber outward through the push-out opening, and

a grip jaw unit configured to extend from an outer circumferential face of the grip cylinder unit of the outer cylinder outwardly in a radial direction, wherein a finger hook unit by which a finger of a user is to be hooked is formed at the grip jaw unit.

Advantageous Effects of the Invention

According to the present invention, since a user inserts an outer cylinder in a state in which the user's finger is hooked on a finger hook part of a grip jaw unit, the outer cylinder can be inserted into a vagina at an appropriate position or angle inside the vagina, and it becomes possible to easily dispose an absorber at the appropriate position inside the vagina.

BRIEF DESCRIPTION OF DRAWINGS

[FIG. **1**]FIG. **1** is a perspective view of a tampon applicator, according to a first embodiment of the present invention.

[FIG. **2**]FIG. **2** is a plan view of the tampon applicator shown in FIG. **1**.

[FIG. **3**]FIG. **3** (*a*) is a plan view of the grip jaw unit, and FIG. **3** (*b*) is a side view of the grip jaw unit shown in FIG. **1**.

[FIG. **4**]FIG. **4** is a schematic cross section showing a use mode of the tampon applicator shown in FIG. **1**.

[FIG. **5**]FIG. **5** is a plan view of a grip jaw unit according to Exemplary Modification 1.

[FIG. **6**]FIG. **6** is a plan view of a grip jaw unit according to Exemplary Modification 2.

[FIG. **7**]FIG. **7** is a plan view of a grip jaw unit according to Exemplary Modification 3.

[FIG. **8**]FIG. **8** is a plan view of a grip jaw unit according to Exemplary Modification 4.

[FIG. **9**]FIG. **9** is a plan view of a grip jaw unit according to Exemplary Modification 5.

[FIG. **10**]FIG. **10** is a plan view of a grip jaw unit according to Exemplary Modification 6.

[FIG. **11**]FIG. **11** is a view showing a grip jaw unit of a tampon applicator, according to a second embodiment of the present invention. FIG. **11** (*a*) is a plan view of the grip jaw unit, and FIG. **11** (*b*) is a cross section of the grip jaw unit.

[FIG. **12**]FIG. **12** is a schematic cross section showing a use mode of the tampon applicator, according to the second embodiment.

[FIG. **13**]FIG. **13** is a plan view of a grip jaw unit according to Exemplary Modification 7.

[FIG. **14**]FIG. **14** is a view showing a grip jaw unit of a tampon applicator, according to a third embodiment of the present invention. FIG. **14** (*a*) is a plan view of the grip jaw unit, and FIG. **14** (*b*) is a cross section of the grip jaw unit.

DESCRIPTION OF EMBODIMENTS

(First Embodiment)

A tampon applicator, according to a first embodiment of the present invention, will be described with reference to FIG. **1** and FIG. **2**. FIG. **1** is a perspective view showing an entire tampon applicator, according to the first embodiment, and FIG. **2** is a plan view of the tampon applicator, shown in FIG. **1**.

An applicator **1** for tampon has an outer cylinder **2** and an inner cylinder **3**. The outer cylinder **2** and the inner cylinder **3** are formed in a cylindrical shape having a hollow potion at its inside. A sectional shape of each of the outer cylinder **2** and the inner cylinder **3** is a shape of a perfect circle. The outer cylinder **2** and the inner cylinder **3** are entirely formed of polyolefin such as polyethylene or polypropylene, or alternatively are entirely formed of a corrugated board, a surface of which is laminated with a polyolefin film. While the sectional shape of each of the outer cylinder **2** and the inner cylinder **3**, according to the embodiment, is a shape of a perfect circle, the sectional shape of each of the outer cylinder **2** and the inner cylinder **3** may be a shape that can be easily inserted into a vagina, and for example, may be an elliptical shape.

An absorber **4** as a tampon is housed inside of the outer cylinder **2**. A takeout cord **4***a* is coupled with the absorber **4**. The takeout cord **4***a* inserts from an end part of the absorber **4** the inside of the inner cylinder **3**, an insertion end part of which is pulled out from the inner cylinder **3**. The absorber **4** can be pulled out from the inside of a body by pulling out the takeout cord **4***a* while in use.

A push-out opening **8** through which the absorber **4** is to be pushed out is provided at one end of the outer cylinder **2**. At the push-out opening **8**, a petal body **8***a* is formed which is deformed toward the outside in a radial direction when the absorber **4** is pushed out. While the petal body **8***a* is always kept to be closed at an edge part of the push-out opening **8**, this petal body opens after being pushed and widened by means of the absorber **4** when the absorber **4** is pushed out by means of the inner cylinder **3**. In this manner, the absorber **4** is pushed out from the outer cylinder **2** to be thereby able to insert the absorber **4** into the body.

A grip cylinder unit **7**, which is to be gripped with the user's fingers at the time of moving operation of the outer cylinder **2** and the inner cylinder **3**, is provided at the other end of the outer cylinder **2**. The grip cylinder unit **7** has a smaller diameter than a diameter of an outer cylinder main body **9** between the push-out opening **8** and the grip cylinder unit **7**. A tip end portion of the inner cylinder **3** is inserted into the grip cylinder unit **7**, and a tip end face of the inserted inner cylinder **3** is seen in the absorber **4**. An end part at the side of the grip cylinder unit **7** of the outer cylinder main body **9** is narrowed in a diameter that is substantially equal to that of the grip cylinder unit **7**, and a convex portion **5** is formed at an outer end of the cylinder unit. The convex portion **5** abuts against a grip jaw unit **11** to be described later, restraining movement of the grip jaw unit **11** so as not to move the grip jaw unit **11** to the side of the outer cylinder main body **9**.

The grip jaw unit **11** configured to extend toward the outside in a radial direction more than the grip cylinder unit **7** is attached to the grip cylinder unit **7**. The grip jaw unit **11** abuts against the convex portion **5**. FIG. **3** is a view showing the grip jaw unit. FIG. **3** (*a*) is a plan view of the grip jaw unit, and FIG. **3** (*b*) is a side view of the grip jaw unit. A hole portion **11***b* through which the grip cylinder unit **7** is to be inserted is formed at the grip jaw unit **11**. A diameter of the hole portion **11***b* may be slightly greater than a diameter of an outer circumference of the grip cylinder unit **7** or may be identical to the diameter of the outer circumference of the grip cylinder unit **7**. In addition, an inner diameter D**1** of the hole portion **11***b* of the grip jaw unit **11** is smaller than an outer diameter D**2** of the convex portion **5**. Therefore, the grip jaw unit **11** is movable relative to the circumferential direction and axial direction of the grip cylinder unit **7**. In addition, the grip jaw unit **11** is restrained from movement to the outer cylinder main body side more than the convex portion **5**, by means of the convex portion **5**.

In the applicator **1** for tampon, of the embodiment, an inner diameter D**1** of the grip jaw unit **11** is 9.9 mm; an outer diameter of the outer cylinder main body **9** is 13.7 mm; an outer diameter of the grip cylinder unit **7** is 9.4 mm; and an outer diameter of the convex portion **5** is 10.4 mm. In addition, a length L**1** (refer to FIG. **2**) from an end part of the outer cylinder **2** at the side of the push-out opening **8** to the grip jaw unit is 50 mm, and a length L**2** (refer to FIG. **2**) from a face at a tip end side of the grip jaw unit **11** to an end part of the outer cylinder **2** at the side of the grip cylinder unit **7** is 10 mm. Since the length L**2** from the face at the tip end side of the grip jaw unit **11** to the end part of the outer cylinder **2** at the side of the grip cylinder unit **7** is equal to a length of a portion to be gripped by a user when in use, it is desirable that the length be 10 mm or more in consideration of easiness of gripping by the user.

An outer shape of the grip jaw unit **11** is a substantially rectangular shape in a planar view. The grip jaw unit **11** has: one pair of long edges **31** that extends in a longitudinal direction (a Z-direction as illustrated); and one pair of short edges **32** that extends in a widthwise direction of the grip jaw unit **11** (an X-direction as illustrated). At the short edges **32**, finger hook units **11***a* to be hooked by the user's fingers are respectively formed. The finger hook units **11***a* are concave portions, each of which is concaved to the side of the hole portion **11***b* (a center side). The concave portions **11***a* are disposed so as to be opposed to each other, whereby the user can pinch the grip jaw portion **11** by her two fingers while the fingers are each placed along one of the concave portions **11***a*. Therefore, when the tampon applicator **1** is inserted into her body, the fingers holding the grip jaw unit **11** hardly slip. Accordingly, the outer cylinder **2** can be inserted in a state in which an appropriate insertion angle is maintained, and the absorber **4** can be easily disposed at an appropriate position inside the vagina.

A center in planar view of the grip jaw unit **11** is coincident with a center of the hole portion **11***b* of the grip jaw unit **11**. The concave portions **11***a* are each formed in a predetermined region that has a dimension HA**2** or HB**2**, in the longitudinal direction (the Z-direction as illustrated), as measured from respective end parts of the long edges **31** of the grip jaw unit **11** toward the hole portion **11***b*. The region in which each of the concave portions **11***a* is formed is further spaced, in the widthwise direction (the X-direction as illustrated), inwardly from the long edges **31** of the grip jaw unit **11** by respective spacings WA**2** and WB**2**. A length H in the longitudinal direction of the grip jaw unit **11** is equal to a sum obtained by combining (i) distances HA**1** and HB**1** from the center to the regions where the concave portions **11***a* are formed with (ii) the dimensions HA**2** and HB**2** in the longitudinal direction of the regions in which the concave portions **11***a* are formed. In addition, a width W in the widthwise direction of the grip jaw unit **11** is equal to a sum obtained by combining (i) a dimension WA**1** in the widthwise direction of the regions in which the concave portions **11***a* are formed with (ii) the spacings WA**2** and WB**2**.

Dimensions of the concave portions **11***a* may be those determined to an extent such that a region in which the user's

finger is to be hooked is ensured, and for example, may be those determined to an extent such that the user's nail can be hooked. In the embodiment, the lengths HA**2** and HB**2** in the longitudinal direction of the region in which the concave portions **11***a* are formed are respectively 3 mm, and the dimension WA**1** in the widthwise direction of the region in which the concave portions **11***a* are formed are respectively 13 mm. It is desirable that the dimension WA**1** in the widthwise direction of the regions in which the concave portions **11***a* are formed is such that a pad part of a finger can be received in each concave portion **11***a*.

In addition, in respect of the dimensions in the longitudinal direction of the grip jaw unit **11**, a maximum dimension that is a length between both end parts is 26 mm, and the lengths HA **1** and HB**1** from the center to the region in which the concave portions **11***a* are formed are respectively 10 mm. Further, in respect of the dimensions in the widthwise direction of the grip jaw unit **11**, a maximum widthwise dimension that is a dimension between both end parts is 17 mm, and the dimensions WA**2** and WB**2** from the region in which the concave portions **11***a* are formed to each end in the widthwise direction are respectively 2 mm, and the linear dimension WA**3** in the region in which the concave portions are formed is 10 mm.

It is desirable that a dimension in the widthwise direction of the grip jaw unit **11** be a dimension that extends outwardly by at least 2 mm more than an inner diameter of a hollow portion from a viewpoint of ensuring a strength in the circumference of the hollow portion **11***b*, and the dimension is 17 mm in the embodiment. Further, it is desirable that the dimension in the widthwise direction of the grip jaw unit **11** be at least 15 mm or more from a viewpoint of preventing bodily liquid from adhering to a finger when the grip jaw unit **11** and a vaginal opening **100** (refer to FIG. **4**) abut against each other.

While, in the embodiment, two concave portions are provided as finger hook units, at least one concave portion may be provided without being limitative to this structure. In addition, two concave portions do not always need to be disposed to be opposed to each other, dispositions of which are not limitative thereto. In addition, while, in the embodiment, the concave portions are provided on short edges (both end parts of the long edges **31**), these concave portions may be provided on the long edges **31** (both end parts of the short edges **32**). However, the concave portions are provided on the short edges, whereby a distance between the concave portions becomes long in comparison with a case in which the concave portions are provided on the long edges **31**, thus enabling a user to grip the grip jaw unit more easily.

A length H**1** between the concave portions **11***a* (refer to FIG. **3**) is greater than an outer diameter of the grip cylinder unit **7**, and is greater than an outer diameter D**4** of the outer cylinder main body **9** (refer to FIG. **2**). In more detail, the length H**1** of the concave portion **11***a* is greater than an outer diameter of the convex portion **5** that is formed at the grip cylinder unit **7**. Therefore, by gripping the concave portion **11***a* of the grip jaw unit **11**, the jaw unit can be easily held in comparison with a case of gripping an outer circumferential face or the like of the outer cylinder **2**, and a force can be applied at the time of insertion. In particular, since the concave portion **11***a* of the grip jaw unit **11** is formed in a curved shape, and is concaved toward the inside with respect to the outer circumferential face, the user can take her fingers along a concave part of the concave portion **11***a* to be able to prevent her fingers from slipping at the time of inserting the outer cylinder **2**.

In addition, since, the grip jaw unit **11** is rotatable with respect to the grip cylinder unit **7**, when the outer cylinder **2** is inserted into the body in a state in which the grip jaw unit **11** is gripped, the grip jaw unit **11** is rotated with respect to the outer cylinder **2** to be thereby able to insert the outer cylinder **2** into the body while maintaining an appropriate angle. Specifically, an angle or an position of a hand holding the applicator **1** for tampon varies depending upon a state in which the push-out opening **8** that is a tip end of the outer cylinder **2** abuts against the vaginal opening **100** and a state in which the grip jaw unit **11** abuts against the vaginal opening **100**. At this time, by rotating the grip jaw unit **11** with respect to the outer cylinder **2**, a relative angle between the grip jaw unit **11** and the outer cylinder **2** can be varied to be kept in track with a variation of a position or an angle of the hand with respect to the tampon applicator. Accordingly, even in a case where an angle or a position of the hand holding the applicator **1** for tampon has varied, the user can insert the tampon applicator smoothly by appropriately applying a force to the applicator.

An outer circumferential shape of the grip jaw unit **11** is formed in a curved shape. Specifically, apart from the shape of the concave portion **11***a*, a crossing portion between an outer circumferential face of the grip jaw unit **11** and a plane of the grip jaw unit **11**, and a crossing portion at which a long edge and a short edge **32** cross each other are also formed in a curved shape. The curved shape may be a structure which does not has an acute angled part, or alternatively, may partially include a linear shape. The outer circumferential shape of the grip jaw unit **11** is thus formed in the curved shape to be thereby able to alleviate a touch sense obtained when the user grips the grip jaw unit **11**.

In addition, the grip jaw unit **11** in the embodiment is obtained by means of ejection molding of a thermoplastic resin with the use of die molding. At the time of ejection molding, the grip jaw unit **11** may be molded at the same time when the outer cylinder **2** is molded, or alternatively, may be molded separately so as to be engaged with the outer cylinder through an integral forming step in a manufacturing process. Further, the grip jaw unit **11** may be structured to be removably mounted to the outer cylinder **2**, or alternatively, may be structured so that a user engage them with each other prior to use.

Next, use modes of the thus structured tampon applicator will be described. FIG. **4** is a schematic cross section showing a use mode of the tampon applicator. When using an absorber **4**, a user first inserts an outer cylinder **2** until the cylinder has reached an appropriate position of a vagina **101**. FIG. **4** shows a state in which the outer cylinder **2** is inserted until the outer cylinder has reached the appropriate position of the vagina **101**. Since the user grips a grip jaw unit **11** of its diameter which is greater than that of a grip cylinder unit **7** of the outer cylinder **2**, the outer cylinder can be appropriately inserted while the grip jaw unit **11** is pinched. Further, since a user pinches the grip jaw unit while per finger is taken along the concave portion, even if a user has her long finger nails or wears false nails as shown in FIG. **4**, the user can orient her nails in a direction that is distant from the vaginal opening **100** to be able to prevent her nail from accidentally hitting the user's body such as the vaginal opening.

For example, if a user whose finger nails are long uses a tampon applicator, which does not have the grip jaw unit **11**, since the grip cylinder unit **7** of its diameter which is smaller than that of the grip jaw unit **11** is gripped with at least two fingers, a top end of the nail may be oriented inwardly of the grip cylinder unit **7**. If the outer cylinder **2** is inserted into the body in a state in which the finger nail is oriented inwardly of the grip cylinder unit **7** there is an apprehension that a tip end of the nail accidentally hits the vaginal opening **100** or its

peripheral user's body. However, it is possible to prevent the nail from accidentally hitting the body by providing the grip jaw unit **11**.

In a state in which the outer cylinder **2** is inserted until the outer cylinder has reached an appropriate position, a plane at a back side of the grip jaw unit **11** (at the side of the outer cylinder main body) is disposed in the vicinity of the vaginal opening. Even if an attempt is made to further insert the outer cylinder **2** in this state, the grip jaw unit **11** abuts against the user's body. That is, the grip jaw unit **11** functions as a stopper, and the user can recognize the fact that the outer cylinder **2** could be inserted until the outer cylinder had reached the appropriate position when the grip jaw unit **11**, which abuts the user's body in the vicinity of the vagina opening, stops the outer cylinder **2** from being inserted further. If the grip jaw unit **11** is moveable in the axial direction of the grip cylinder unit **7**, an axial movement of the grip jaw unit **11** during the insertion is stopped by the convex portion **5**. In this case, the convex portion **5** defines an appropriate depth at which the absorber **4** can be placed inside the vagina. In addition, in a state in which the outer cylinder **2** is inserted until the outer cylinder has reached the appropriate position, since the grip jaw unit **11** is disposed between the vaginal opening **100** and the finger, it is possible to prevent the user's finger from being dirty due to her bodily liquid such as menstrual blood.

Next, after inserting the outer cylinder **2** until the outer cylinder has reached a predetermined position inside the vagina, the user compresses inner cylinder **2** against the side of the outer cylinder **2**, whereby the absorber **4** is pushed out through the push-out opening **8** of the outer cylinder **2**, and the absorber **4** is disposed at an appropriate position inside the vagina **101**. In this way, by providing the grip jaw unit **11**, the absorber **4** can be easily disposed at the appropriate position without the user's finger touching the vaginal opening or its vicinity. By disposing the absorber **4** at the appropriate position, the user can lessen a sense of discomfort when in use, and can comfortably feel use of the tampon.

The finger hook units of the grip jaw unit **11** according to the first embodiment are respectively provided on one pair of short edges, and are provided at two sites. However, the finger hook units may be provided at two sites or more of the grip jaw unit without being limitative to this structure. Next, a grip jaw unit according to Exemplary Modification will be described. FIG. **5** is a plan view of a grip jaw unit **12** according to Exemplary Modification 1, and FIG. **6** is a plan view of a grip jaw unit **13** according to Exemplary Modification 2. From the following description of the exemplary modifications, a description of like constituent elements of the first embodiment.

An external shape of the grip jaw unit **12** according to Exemplary Modification 1 is a substantial circular shape in planar view. On an outer circumferential face of the grip jaw unit **12**, a concave portion **12***a* that is concaved to the side of a hole portion **12***b* (to the center side) is formed as a finger hook unit. A total of three concave portions **12***a* are formed, the intervals among the concave portions **12***a* are equal to each other, and the three concave portions **12***a* are disposed to be displaced from each other by **120** degrees with respect to a center of the hollow portion **12***b*. The three concave portions **12***a* are thus provided along an outer circumferential face of the grip jaw unit **12**, whereby the grip jaw unit **12** can be gripped by three fingers, and stability at the time of inserting the outer cylinder **2** can be improved. Further, the intervals among the three concave portions **12***a* are made equal to each other, whereby the grip jaw unit **12** can be held by equally applying a force via the concave portions **12***a*, and the stability at the time of gripping the recessed portions can be improved.

In addition, like a grip jaw unit **13** according to Exemplary Modification 2 shown in

FIG. **6**, three or more finger hook units **3** may be formed. An external shape of the grip jaw unit **13** according to Exemplary Modification 2 is a shape of a substantially perfect circle in planar view. On an outer circumferential face of the grip jaw unit, a concave portion **13***a* that is concaved to the side of a hollow portion **13***b* (a center side) is formed as a finger hook unit. A total of five same concave portions **13***a* including the above concave portion are formed, and the intervals among the concave portions **13***a* are equal to each other. According to the grip jaw unit **13**, from among these five concave portions **13***a*, a user can hold the grip jaw unit **13** while appropriately selecting at least one concave portion **13** at which her fingers are easily disposed. Hence, it becomes possible to appropriately grip the jaw portions even in a plurality of users whose hands in size or whose fingers in length are difficult from each other.

While, in the grip jaw units according to Exemplary Modification 1 and Exemplary Modification 2, concave portions are disposed so that the intervals among the concave portions are equal to each other, these concave portions are not limitative to this structure. For example, the grip jaw unit according to Exemplary Modification 1 may be structured in such a manner that, among three concave portions, two concave portions are disposed so that intervals there between are reduced, and intervals between each of these two concave portions and another concave portion are increased. Specifically, this grip jaw unit may be structured so that lines connecting the three concave portions form an isosceles triangle.

In addition, the grip jaw unit may be formed in another external shape other than a rectangle or a perfect circle in planar view. Further, while, in the first embodiment, a concave portion is set forth as a finger hook unit, a convex portion between a concave portion and a concave portion may be employed as a finger hook unit.

Next, grip jaw units according to Exemplary Modification 3 to Exemplary Modification 6 will be described with reference to FIG. **7** to FIG. **10**. FIG. **7** is a plan view of a grip jaw unit **14** according to Exemplary Modification 3, and FIG. **8** is a plan view of a grip jaw unit **15** according to Exemplary Modification 4. FIG. **9** is a plan view of a grip jaw unit **16** according to Exemplary Modification 5, and FIG. **10** is a plan view of a grip jaw unit **17** according to Exemplary Modification 6.

An external shape of the grip jaw unit **14** according to Exemplary Modification 3 is a partially elliptical shape in planar view (shorter edge side), and at both end parts in the longitudinal direction, concave portions **14***a* that are concaved to the side of a hole portion **14** (a center side) are respectively formed as finger hook units. These two concave portions **14***a* are disposed to be opposed to each other. By means of such grip jaw units **14** as well, both end parts of the grip jaw portion can be appropriately pinched with two fingers.

An external shape of the grip jaw unit **15** according to Exemplary Modification 4 is a heart shape in planar view. On an outer circumferential face of the grip jaw unit, convex portions **15***d* that are protruded at an upper side in the drawing and a concave portion **15***a* that is concaved to the center side between the convex portions **15***d* are formed as finger hook units. According to the grip jaw unit **15**, a user can grip the grip jaw portion **15** while hooking the convex portions **15***d* or the concave portion **15***a* with fingers. In addition, since the

external shape of the grip jaw unit **15** is a heart shape, a medical utensil-like tampon can be decorated lovingly by means of the grip jaw unit **15**. Therefore, a gloomy feel in menstruation of a user can be alleviated, and a desire to use the tampon next time can be improved.

In addition, a user may widen the labia majora with her hand which does not hold the applicator **1** for tampon at the time of insertion of the outer cylinder **2** and, in this state, insert the outer cylinder **2** into her vagina. At this time, since the user widens the labia majora by stretching her hand from the foreside of the body, the labia majora of the foreside of the body widens, and the labia majora at the posterior side (anal side) of the body does not widen. Therefore, an opening shape of the labia majora becomes a substantially triangular shape. On the other hand, a heart-shaped grip jaw unit **15** is formed in a substantially triangular shape in planar view, and is formed in the shape that is similar to the opening shape of the labia majora. In this way, by employing the grip jaw unit, the shape of which is similar to the opening shape of the labia majora, the grip jaw unit **15** is hardly hooked on the labia majora, and the applicator **1** for tampon can be smoothly inserted into the body.

An external shape of the grip jaw unit **16** according to Exemplary Modification 5 and an external shape of the grip jaw unit **17** according to Exemplary Modification 6 are respectively shapes of animal heads in planar view. The grip jaw unit **16** is formed in a shape of a bear's head, and the grip jaw unit **17** is formed in a shape of a cat's head. A bear's ear part and a cat's ear part are more protrusive to the outside than a face part, and are convex portions **16***d* and **17***d* as finger hook units. In addition, a concave portion between the convex portions **16***d* and **17***d* that are ear parts is a respective one of concave portions **16***a* and **17***a* as finger hook units.

In this manner, the external shapes of the grip jaw units are formed in the shapes of animal heads as well, whereby a medical utensil-like tampon can be decorated lovingly by means of the grip jaw unit. Therefore, a gloomy feel in menstruation of the user can be alleviated.

In addition, a decoration effect can be further enhanced by applying a color to a grip jaw unit. Although the color to be applied to the grip jaw unit is not limitative in particular, for example, red or pink can be applied to a heart-shaped grip jaw unit, or alternatively, brown can be applied to a bear-shaped grip jaw unit. Further, by applying a color to a grip jaw unit, the grip jaw unit can be made conspicuous, and in particular, it can be easily handled in a dark location such as toilet.

(Second Embodiment)

Next, a tampon applicator, according to a second embodiment, will be described in detail with reference to FIG. **11** and FIG. **12**. In the description of the second embodiment, constituent elements that are different from those of the first embodiment will be described, whereas a description of similar constituent elements is omitted therefrom.

FIG. **11** is a view showing a grip jaw unit **18** of a tampon applicator, according to the second embodiment. FIG. **11** (*a*) is a plan view of the grip jaw unit, and FIG. **11** (*b*) is a cross section taken along the line x-X shown in FIG. **11** (*a*). In addition, FIG. **12** is a view showing a use mode of the tampon applicator, according to the second embodiment.

In the grip jaw unit **18** according to the second embodiment, like the grip jaw unit according to the first embodiment, a hole portion **18***b* through which a grip cylinder unit **7** of an outer cylinder **2** is to be inserted is formed, and on a surface of the hole portion, a finger hook unit is formed. The grip jaw unit **11** according to the first embodiment and the grip jaw unit **18** according to the second embodiment are different from each other in external shape and in structure of finger hook unit.

An outer circumferential shape of the grip jaw unit **18** according to the second embodiment is a shape of a perfect circle. A finger hook unit is a nail hook unit **18***e* by which a user's nail is to be hooked. The nail hook unit **18***e* is formed on a plane **18***f* that extends from the hole portion **18***b* outwardly in the radial direction, and is formed so as to be concaved in a thickness direction of the grip jaw unit **18**.

When using the tampon applicator, which is provided with the thus structured grip jaw unit **18**, as shown in FIG. **12**, a user inserts her finger nail into the nail hook unit **18***e* to be thereby able to insert the outer cylinder **2** into the body. In addition, for example, when the user begins to insert into the vagina with the outer cylinder **2** being abutted against the vaginal opening **100**, the user grips the outer cylinder **2** at a pad part of the user's finger; and when the outer cylinder **2** is pushed at a final stage, the user inserts her nail into the nail hook unit **18***e*, whereby the outer cinder **2** may be pushed into the body via the grip jaw unit **18**.

In addition, the structure of the nail hook unit is not limitative to the nail hook unit **18***e* of the grip jaw unit **18** according to the second embodiment. Next, a grip jaw unit according to Exemplary Modification 7 will be described with reference to FIG. **13**. FIG. **13** is a plan view of a grip jaw unit **19** according to Exemplary Modification 7.

An outer circumferential shape of the grip jaw unit **19** is a perfect circle. A finger hook unit of the grip jaw unit **19** has: a concave portion **19***a* by which a finger's pad part is to be hooked; and a nail hook unit **19***e* by which a finger's nail part is to be hooked. The concave portion **19***a* is formed in a shape that is concaved from an outer circumferential face of the grip jaw unit **19** to the side of a hole portion **19***b*.

The nail hook unit **19***e* is a hole portion that is formed on a plane **19***f* that extends from the hole portion **19***b* outwardly in a radial direction, and that penetrates the grip jaw unit **19** in the thickness direction of the grip jaw unit **19**. In addition, since the grip jaw unit **19** has: a concave portion **19***a* with which a finger's pad part comes into contact; and a nail hook unit **19***e* with which a finger nail part comes into contact, the user can hold the grip jaw unit **19** while appropriately selecting any of the finger hook unit at the time of insertion.

(Third Embodiment)

Next, a tampon applicator, according to a third embodiment, will be described in detail with reference to FIG. **14**. In the description of the third embodiment, constituent elements that are different from those of the first embodiment will be described, whereas a description of similar constituent elements is omitted therefrom. FIG. **14** is a view showing a grip jaw unit of the tampon applicator, according to the third embodiment.

A grip jaw unit **20** according to the third embodiment has a rubber unit **20***g* as a finger hook unit. The rubber unit **20***g* is provided so as to cover an outer circumferential face made of an ejection-molded thermoplastic resin. According to the tampon applicator, having the grip jaw unit **20**, when a user grips the grip jaw unit **20**, the rubber unit **20***g* of the grip jaw unit **20** is elastically deformed, and a sense of fitting that is felt when the rubber unit is pinched with fingers can be enhanced. In addition, fingers are hardly slipped by employing the rubber unit **20***g* with its high coefficient of friction, and the tampon applicator can be inserted into the body in a state in which the grip jaw unit **20** is appropriately supported.

While, in the grip jaw unit **20** according to the third embodiment, a rubber unit is provided on an outer circumferential face, such rubber unit is not limitative to this structure.

The rubber unit may be provided on a plane that extends from the hole portion **20***b* of the grip jaw unit **20** outwardly in a radial direction, or alternatively, may be provided on an entire surface of the grip jaw unit.

In this manner, it is a matter of course that the present invention is inclusive of a variety of embodiments or the like that are not described herein. Therefore, a technical scope of the present invention is defined only by specific matters of the invention according to the claims that are reasonable from the foregoing description.

The present invention described above may be arranged in at least the following items:

A tampon applicator, comprising: an absorber; an outer hollow member in which the absorber is housed, the outer hollow member having opposite sides, a push-out opening through which the absorber is to be pushed out at one of the opposite sides, and a grip unit at the other side; an inner member insertable and moveable into the outer hollow member to thereby push the absorber outward through the push-out opening; and a grip jaw unit extending from an outer circumference of the grip unit of the outer hollow member outwardly in a radial direction, wherein the grip jaw unit has at least a concave portion for receiving a finger or a nail of a user for facilitating gripping of the grip jaw unit by the user's finger or nail.

Preferably, said concave portion may be arranged on a circumference of the grip jaw unit and multiple said concave portions may be arranged along the circumference of the grip jaw unit.

Preferably, said concave portion may be arranged on a plane of the grip jaw unit that faces away from the push-out opening and multiple said concave portions arranged on said plane.

Preferably, the grip jaw unit is rotatable in a circumferential direction with respect to the grip unit.

Further, the present invention described above may be arranged as a tampon applicator, comprising: an absorber; an outer hollow member in which the absorber is housed, the outer hollow member having opposite sides, a push-out opening through which the absorber is to be pushed out at one of the opposite sides, and a grip unit at the other side; an inner member insertable and moveable into the outer hollow member to thereby push the absorber outward through the push-out opening; and a grip jaw unit extending from an outer circumference of the grip unit of the outer hollow member outwardly in a radial direction, wherein the grip jaw unit has an elastically deformable element configured to be deformed by and frictionally engage a finger of a user for facilitating gripping of the grip jaw unit by the user's finger.

Preferably, the nail hook unit is concaved in a thickness direction of the grip jaw unit without extending through an entire thickness of the grip jaw unit. Further, the nail hook unit may penetrate an entire thickness of the grip jaw unit in a thickness direction of the grip jaw unit. The grip jaw unit may be moveable relative to the grip cylinder unit in an axial direction of the grip cylinder unit. The outer cylinder may further include a convex portion for limiting movement of the grip jaw unit in the axial direction and for defining an appropriate depth at which the absorber is placeale inside the user's body. The grip jaw unit may be removably mounted to the outer cylinder.

Note that this application claims the benefit of Japanese Application No. 2010-290081 the entire disclosure of which is incorporated by reference herein.

The invention claimed is:

1. A tampon applicator, comprising:

an outer cylinder housing an absorber, the outer cylinder having:

a push-out opening through which the absorber is configured to be pushed out, the push-out opening provided at one side of the outer cylinder, and

a grip cylinder unit at the other side of the outer cylinder,

an inner cylinder insertable into the grip cylinder unit and configured to move further into the outer cylinder to push out the absorber outward through the push-out opening; and

a grip jaw unit extending from an outer circumferential face of the grip cylinder unit of the outer cylinder outwardly in a radial direction more than the grip cylinder unit,

wherein

the grip jaw unit has

a first face configured to face a vaginal opening of a user,

a second face configured to face away from the vaginal opening of the user,

a finger hook unit configured to be hooked by a finger of the user, the finger hook unit having a concave portion arranged on an outer circumferential edge of the grip jaw unit and curving toward a center of the grip jaw unit; and

first and second nail hook units configured to be hooked by finger nails of the user and arranged on the second face of the grip jaw unit,

the first and second nail hook units are concave in a thickness direction of the grip jaw unit or penetrate through the grip jaw unit in the thickness direction, and

the first nail hook unit is opposite to the second nail hook unit with respect to the center of the grip jaw unit.

2. The tampon applicator according to claim **1**, wherein the finger hook unit further has a convex portion on the outer circumferential edge of the grip jaw unit.

3. The tampon applicator according to claim **1**, wherein an outer circumferential shape of the grip jaw unit is a curved shape.

4. The tampon applicator according to claim **1**, wherein the grip jaw unit further comprises at least two further finger hook units identical to the finger hook unit.

5. The tampon applicator according to claim **1**, wherein the finger hook unit has a rubber unit that is provided on the outer circumferential edge of the grip jaw unit.

6. The tampon applicator according to claim **1**, wherein the grip jaw unit is rotatable in a circumferential direction with respect to the outer cylinder.

7. The tampon applicator according to claim **1**, wherein

the grip cylinder unit has an end opposite to the push-out opening of the outer cylinder, and

the grip jaw unit is spaced away from the end of the grip cylinder unit in a longitudinal direction of the outer cylinder.

8. The tampon applicator according to claim **1**, wherein the concave portion of the finger hook unit is concave toward the center of the grip jaw unit in the radial direction.

9. The tampon applicator according to claim **1**, wherein the first and second nail hook units are located within the outer circumferential edge of the grip jaw unit.

10. The tampon applicator according to claim **1**, wherein the first and second nail hook units penetrate through an entire thickness of the grip jaw unit in the thickness direction.

11. The tampon applicator according to claim **10**, wherein the finger hook unit is concave toward one of the first and second nail hook units in the radial direction.

12. The tampon applicator according to claim 1, wherein the first and second nail hook units are concave in the thickness direction of the grip jaw unit, without penetrating through an entire thickness of the grip jaw unit in the thickness direction.

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